AMENDMENT TO THE CLAIMS

1-16. (canceled)

17. (currently amended): A radar level transmitter for providing level detection of materials in a container, the transmitter comprising:

an antenna;

a transceiver coupled to the antenna and configured to transmit a microwave pulse, having a transmit pulse amplitude, using the antenna and produce a signal representing reflected wave pulses;

a microprocessor system coupled to the transceiver and adapted to control the transceiver and process the signal;

a threshold calculation module executable by the microprocessor system and adapted to receive information related ~~to properties of the materials~~a dielectric constant of a first material and a dielectric constant of a second material and calculate ~~a first threshold value as a function of the transmit pulse amplitude and the information related to properties of the materials~~an estimated fiducial pulse amplitude related to a reflected wave pulse from an interface between the antenna and the first material and an estimated first pulse amplitude related to a reflected wave pulse from a first material interface between the first material and the second material, the threshold calculation module further adapted to set a fiducial threshold value based upon the estimated fiducial pulse amplitude and set a first threshold value based upon the estimated first pulse amplitude; and

a level calculation module executable by the microprocessor system and adapted to establish a level in the container of ~~a~~the first material interface using the signal, the fiducial threshold value and the first threshold value.

18. (currently amended): The radar level transmitter of claim 17, wherein:

the threshold calculation module is further adapted to calculate a second threshold value as a function of the transmit pulse amplitude and the information related to ~~properties of the materials~~a dielectric constant of a third material; and

the level calculation module is further adapted to calculate a level of a second material interface between the second material and the third material using the signal and the second threshold value.

19. (previously presented): The radar level transmitter of claim 17, including an input/output port adapted to transmit a level output that is indicative of the first material interface.

20. (currently amended): The radar level transmitter of claim 17, including a dielectric constant calculator adapted to calculate a dielectric parameter relating to one of the ~~properties of the~~ first and second materials as a function of the transmit pulse amplitude and a first reflected wave pulse corresponding to a portion of the microwave pulse reflected at the first material interface, and provide the dielectric parameter to the threshold calculation module for use in establishing the level of the first material interface.

21-24. (canceled)

25. (currently amended): The radar level transmitter of claim 17, wherein the first threshold value is further calculated as a function of at least one of an attenuation factor and a range factor.

26-30. (canceled)

31. (currently amended): The radar level transmitter of claim ~~29~~18, wherein the second threshold is calculated as a function of at least one of an attenuation factor and a range factor.

32-33. (canceled)

34. (currently amended): The radar level transmitter of claim ~~32~~17, wherein the fiducial threshold value is further calculated as a function of at least one of an attenuation factor and a range factor.

35-36. (canceled)

37. (previously presented): The radar level transmitter of claim 17, wherein the first threshold value is further a function of at least one of an offset value and temperature.

38. (canceled)

39. (currently amended): The radar level transmitter of claim 17, ~~,~~ wherein the first threshold value is calculated as a function of a correction factor.

40-42. (canceled)

43. (currently amended) The radar level transmitter of claim 17 wherein the ~~information related to properties~~dielectric constants of the materials ~~is~~are received from an operator.

44. (currently amended) The radar level transmitter of claim 17 wherein the ~~information related to properties~~dielectric constants of the materials ~~is~~are received over a process control loop.

45. (currently amended) The radar level transmitter of claim 17 wherein the first threshold value is further calculated as a function of a temperature.